

## 7. Konstantinos

**Program Name:** Konstantinos.java

**Input File:** konstantinos.dat

In geometry class Konstantinos has been learning about circles being tangent (or not) in various situations. He knows that two circles are externally tangent when they look like this, intersecting at exactly one point, with no other points in common:



For two circles to be externally tangent, mathematically he knows that the sum of the radii for the two circles is equal to the distance between the two centers. He thinks he can figure out the math for other situations shown below but needs your help to write a program to do that. He remembers the distance formula from algebra class, which is:

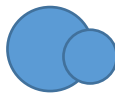
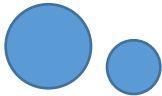
$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

NON-INTERSECTING

INTERSECTING

NESTED

INTERNALLY TANGENT



**Input:** Several data sets, each on one line consisting of six integer values  $x_1$ ,  $y_1$ ,  $r_1$ ,  $x_2$ ,  $y_2$ ,  $r_2$ , representing the (x,y) circle center coordinates and corresponding radii for two circles. All values will have single space separation.

**Output:** For each data set, output the way the two circles intersect (or not), based on the five situations depicted by the diagrams shown above.

**Sample input:**

```
0 0 2 3 0 2
0 0 2 0 3 1
0 0 4 0 2 2
```

**Sample output:**

```
INTERSECTING
EXTERNALLY TANGENT
INTERNALLY TANGENT
```